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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FERRIS, DERRICK W	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/513,090	PATEL ET AL.	
	Examiner	Art Unit	
	Derrick W. Ferris	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *37-46,85-94 and 108-117* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *37-46,85-94 and 108-117* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/19/2004 has been entered.

Response to Amendment

2. **Claims 37-46, 85-94 and 108-117** are pending. Applicant has added claims 108-117.

3. Examiner does **not withdraw** the anticipated rejection to *Clare*. In response to applicant's remarks filed 08/19/2004, at issue is the following limitation:

> *after* reconfiguring the wireless node, transitioning the wireless node to a normal operating state *in response* to determining the operational data is within predefined parameters.

With respect to applicant's figures, figure 7 shows a learning state 222 and an operational state 224 where if thresholds are met then the state transitions to an operational state 224. In addition, applicant's figure 21 further shows a learning state and figure 26 shows an operational state. Absent from the figures is the further step of reconfiguration. Limited support for reconfiguring was found on page 5, lines 9-14. In construing the claims, examiner notes the claim is not clear whether the limitation in response to determining the operational data is within predefined parameters is performed at a learning state or an operational state. Examiner furthermore notes the above limitation is found in both states of applicant's specification, e.g., see step 620 in

figure 21 and step 702 in figure 26. As such, assuming the above limitation is in the learning state, then the limitation is taught by the reference on the first iteration. Assuming the above limitation is in the operational state, then the limitation is also taught when a new node becomes on-line, see e.g., column 6, lines 22-26. As for the *Olofsson* reference, the above limitation is taught by the feedback link between step 815 and 807 in figure 7. In other words, just like applicant's figure 21 and 27, operation thresholds are check and if the thresholds are met a step of reconfiguration occurs and an operational state commences or resumes. Stated another way, examiner notes applicant's learning and operational states both perform the function of "collecting" (i.e., learning at steps 600 and 700) and determining (i.e., steps 620 and 702) such that the states are essentially the same where one is a first iteration and the other is a second iteration.

4. Examiner does **not withdraw** the obviousness rejection to *Clare* in view of *Haas*. In response to applicant's remarks filed 08/19/2004, see similar rejection above where the references are used in combination. In particular, the further limitation in response to is taught by the references in combination using *Clare*. Similarly, *Olofsson* teaches the above limitation given the feedback loop from phase 815 to phase 807 shown in figure 7. In particular, *Olofsson* teaches a singular state as combined blocks selection of optimum link protocol 807 and perform changes 815 such that at the first iteration the singular state is a "learning state" and a second iteration the singular state is either a "learning state" or an "operational state" since both applicant's learning and operational states both collect data (steps 600 and 700) and determine if operational thresholds are met (steps 620 and 702) shown in figures 21 and 26 respectively.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. **Claims 37-40, 42, 44-46, 85-88, 90, and 92-94** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,414,955 B1 to *Clare et al.* ("*Clare*").

As to **claim 37**, *Clare* teaches a distributed topology learning method and apparatus for wireless networks which determines a set of communication nodes (i.e., communication neighbors) and a set of interfering nodes (i.e., interfering neighbors), see e.g., figure 2. In summary, a new node when first powering up (or timing out) activates a startup state, determining initial operating parameters, configures the node, and then actives an RF system to communicate with the other nodes (i.e., the inviting nodes and other active nodes). Once in the listening state (i.e., transitioning to the learning state),

the new node performs the further steps of collecting operation data, modifying operational parameters based on operational data, and reconfiguring the wireless node in an iterative fashion by passing schedules to various nodes in the system. Once sink info is received and a new communication with routing is received, the router is considered in the normal operating state (until the node times out or a new node is added to the system).

In particular, for the limitations "activating the wireless node in a start up state", "automatically determining in the start up state a plurality of operating parameters for the wireless node", "configuring the wireless node based on the operating parameters" and "activating a radio frequency (RF) system for the wireless node", see e.g., step 220 in figure 12a; column 8, lines 8-23; column 14, lines 57-65; and column 16, line 54 – column 17, line 8. For the limitation "transitioning the wireless node to a learning state" and "collecting operational data in the learning state and modifying operating parameters based on the operational data" see e.g., column 8, lines 23-27; column 15, lines 1-42; and column 20, line 56 - column 21, line 41. For the limitation "reconfiguring the wireless node based on the modified operating parameters" see e.g., column 14, lines 12-30; column 15, lines 10-67; and column 20, line 56 - column 21, line 41. For the limitation "after reconfiguring the wireless node, transitioning the wireless node to a normal operating state in response to determining the operational data is within predefined parameters" see e.g., column 8, lines 27-30; column 14, lines 32-35; and column 16, lines 22-27. Examiner furthermore notes a reasonable but broad interpretation of "is within predefined parameters" since the new node now becomes a member of the group since

the operational data (i.e., topology data) is within predefined parameters (i.e., the new node is within the member set in reference to figure 2).

As to **claim 38**, see e.g., column 8, lines 20-22.

As to **claim 39**, see e.g., column 15, lines 10-67.

As to **claim 40**, see e.g., figures 12a-d.

As to **claim 42**, see e.g., column 14, lines 30-35; column 16, lines 59-62 and figures 12a-12d.

As to **claim 44**, see e.g., column 23-26 where a "node" routers information, see e.g., column 14, lines 12-34.

As to **claim 45**, see e.g., figure 2.

As to **claim 46**, see e.g., interference topology.

As to **claim 85**, see similar rejection for claim 37.

As to **claim 86**, see similar rejection for claim 38.

As to **claim 87**, see similar rejection for claim 39.

As to **claim 88**, see similar rejection for claim 39.

As to **claim 90**, see similar rejection for claim 42.

As to **claim 92**, see similar rejection for claim 44.

As to **claim 93**, see similar rejection for claim 45.

As to **claim 94**, see similar rejection for claim 46.

7. **Claims 37, 41, 44-46, 85, 89, 92-94 and 108-117** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,134,230 A to *Olofsson et al.* ("*Olofsson*").

As to **claim 108**, *Olofsson* in figure 7 step 801 teaches the steps of activating the wireless node in a startup state, and automatically determining in the startup state a plurality of operating parameters for the wireless node. In particular, operating parameters are shown in Table 1 (see columns 9-10). Specifically, during start-up the RBS performs a pre-selection process which automatically determines a plurality of operating parameters as shown in e.g., table 1. From the plurality of operating parameters, a pre-selected subset of operating parameters, e.g., see Table 2 in column 13, are selected based on pre-defined capabilities 803 and pre-defined service requirements 805. Step 807 in figure 7 further teaches the limitations configuring the wireless node based on the operating parameters, activating a wireless radio frequency (RF) system for the wireless node, transitioning the wireless node to a learning state, and collecting operational data in the learning state and modifying the operational parameters based on the operational data, the operational data comprising at least one of a call block percentage, an access failure percentage, a packet error rate, and a frame error rate. In particular, once the set of pre-selected combinations is selected, the method of the invention selects an optimal link protocol based on link quality parameters measured on all available RF links. Examiner notes the link quality parameters are the "operational data". As such, in order to measure the link quality of an RF link, the link must be first activated and then configured where the measuring (or "collecting") occurs during a "learning state". In other words, *Olofsson* inherently teaches configuring the wireless node based on the operating parameters and activating the RF system for the node since the node cannot obtain the link quality parameters (i.e., operational data) unless the node

is first configured and then activated. The operating parameters or information in Table 2 is further modified since the optimal link protocol is selected (i.e., the system uses the operational data to estimate the service quality which is in-turned used to select the optimal link protocol). In addition, the operating data further includes at least measuring (or "collecting") FER, see e.g., column 12, lines 18-32. Finally, step 815 in figure 7 teaches the limitations reconfiguring the wireless node based on the modified operating parameters and after reconfiguring the wireless node, transitioning the wireless node to a normal operating state in response to determining the operational data is within predefined parameters associated with at least one of a call blocking percentage, an access failure percentage, a packet error rate, and a frame error rate. In particular, step 815 informs the node and mobile to reconfigure based on the selected optimum link protocol where the optimum link protocol contains the modified operating parameters. Furthermore, the node is transitioned to a normal operating state where the optimum link protocol is selected. In particular, the limitation in response to determining the operational data is within predefined parameters associated with at least one of a call block percentage, an access failure percentage, a packet error rate, and a frame error rate, is taught since the most optimal link was selected from Table 2 (i.e., in order for the most optimal link to be selected, the RF link must meet the link quality parameters or operational data criteria such as FER). Furthermore, note that step 815 feeds back into step 807 such that the process is continuous in going from a "learning state" to an "operational state".

As to **claim 109**, the link quality parameters as well as instantaneous variable restrictions and the optimization criteria are examples of "efficiency thresholds".

As to **claims 110 and 111**, channel coding, speech coding and modulation schemes are examples of operating parameters that are coverage parameters determined to maximize the interference associated with a wireless node, see e.g., column 3, lines 42-43 in reference to column 3, lines 27-37. In addition, the basic capabilities in MS and BTS 803 and service requirements 805 also covers operating parameters that comprise coverage parameters or interference parameters.

As to **claim 112**, a BER, FER, or C/I is measured per unit time this meeting the further limitation of "for a specified period of time".

As to **claim 113**, see similar rejection to claim 108. In addition, the steps shown in figure 7 are executed in a computer system.

As to **claim 114**, see similar rejection to claim 109.

As to **claim 115**, see similar rejection to claim 110.

As to **claim 116**, see similar rejection to claim 111.

As to **claim 117**, see similar rejection to claim 112.

As to **claim 37**, see similar rejection to claim 108.

As to **claim 41**, see similar rejection to claim 108. In addition, *Olofsson* teaches a singular state as combined blocks selection of optimum link protocol 807 and perform changes 815 such that at the first iteration the singular state is a "learning state" and a second iteration the singular state is either a "learning state" or an "operational state".

As to **claim 44**, see similar rejection to claim 108. In addition, the base station acts as a wireless router.

As to **claim 45**, see similar rejection to claim 108. In addition, the base station acts as a wireless router.

As to **claim 46**, see similar rejection to claim 108.

As to **claim 85**, see similar rejection to claim 37.

As to **claim 89**, see similar rejection to claim 41.

As to **claim 92**, see similar rejection to claim 44.

As to **claim 93**, see similar rejection to claim 45.

As to **claim 94**, see similar rejection to claim 46.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. **Claims 41, 43, 89, and 91** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,414,955 B1 to *Clare et al.* ("*Clare*") in view of "On the Performance of a Routing Protocol for the Reconfigurable Wireless Network" to *Haas et al* ("*Haas*).

In making a proper obviousness rejection under MPEP 706.02(j), the examiner will address the following four steps:

a) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line numbers where appropriate;

b) the difference of differences in the claim(s) over the applied cited references;
c) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and
d) *an explanation why one skilled in the art at the time of the invention was made would have been motivated to make the proposed modification.*

As such to **claim 41 and 43**, for step (a) *Clare* discloses the elements for the base claim.

For step (b) *Clare* is silent or deficient to the further limitations collecting operational data in the normal operating state and transitioning back to the learning state in response to determining the operational data is outside predefined parameters and transitioning from the normal operating state back to the learning state in response to accepting a modification in operating parameters requested by a neighboring node respectively. In particular, *Clare* teaches transitioning back to a learning state when a node powers up, reaches a certain time interval, or adds a new node in the topology.

Haas teaches the further recited limitation above at e.g., left hand column page 102.

For step (c), the proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Clare* to further clarify that the normal operating state and transition back to a learning state in response to determining that the operational data is outside the predefined parameters or in response to accepting a modification in operating parameters requested by a neighboring node.

In order to establish a prima facie case of obviousness for step (d), three basic criteria must be met. The three criteria according to MPEP 706.02(j) are as follows:

First there must be some suggestion or modification, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As such, for step (d) examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further limitations collecting operational data in the normal operating state and transitioning back to the learning state in response to determining the operational data is outside predefined parameters and transitioning from the normal operating state back to the learning state in response to accepting a modification in operating parameters requested by a neighboring node respectively. In particular, the motivation for modifying the reference or to combine the reference teachings would be once a node starts routing/switching there is a need to reconfigure the node if the node moves out of a zone causing parameters not to be within a "predetermined threshold". In particular, *Haas* cures the above-cited deficiency by providing a motivation found at e.g., page 104, right-hand column. Second, there would be a reasonable expectation of success since both references disclose ad hoc networking. Thus the references either in singular or in combination teach the above claim limitation.

As to **claim 89**, see similar rejection for claim 41.

As to **claim 91**, see similar rejection for claim 43.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derrick W. Ferris
Examiner
Art Unit 2663

DWF

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SUPERVISORY PATENT EXAMINER
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12/6/04